

WHAT IS CLAIMED IS

1. A retardation film having a birefringence, wherein
when a first biaxial index ellipsoid having primary refractive indexes n_x , n_y , and n_z is assumed, where the primary refractive indexes n_x , n_y , and n_z in X, Y and Z axis directions, respectively, satisfy a relationship of $n_x \neq n_y \neq n_z$, X and Y axes being parallel to a film surface and a Z axis being normal to the film surface, the retardation film has primary refractive indexes n_x' , n_y' and n_z' of a biaxial index ellipsoid which is obtained by rotating the first biaxial ellipsoid at an arbitrary rotational angle θ_1° about the X axis as an axis of rotation and at an arbitrary rotational angle θ_2° about the Y axis as an axis of rotation.
2. A process for producing the retardation film according to claim 1, comprising:
 - a step of forming a film from a photosensitive material; and
 - a step of irradiating the film with a light from a direction inclined with respect to the film surface with optional heating and cooling of the film.
3. A retardation film having a birefringence, wherein
the birefringence bears a combination of a first index ellipsoid having primary refractive indexes n_x , n_y , n_z in X, Y and Z axis directions, respectively, X and Y axes being set on the film surface and Z axis conforming a direction of the film thickness, where the primary refractive indexes n_x , n_y , and n_z satisfy a relationship of $n_x > n_y \geq n_z$, and a second index ellipsoid, having primary refractive indexes n_x' , n_y' , n_z' , obtained by rotating the first index ellipsoid at an angle of θ_3° about the Y axis as an axis of rotation and at an angle of θ_4° about the Z axis as the axis of rotation, where the primary refractive indexes n_x' , n_y' , and n_z' satisfy a relationship of $n_x' > n_y' \geq n_z'$.
4. A process for producing the retardation film according to claim 3, comprising:
 - a step of forming a film from a photosensitive material; and

a step of irradiating the film with a light from a direction inclined with respect to the film surface with optional heating and cooling of the film.

5. The process for producing the retardation film according to claim 4, wherein the light irradiated from the direction inclined with respect to the film surface includes a perfectly polarized light component and a non-polarized light component and a direction of electric field oscillation of said perfectly polarized light component is non-parallel and non-orthogonal to a plane of incidence of the irradiated light.